The DRILLER

'Getting the Drift . . .'

With their Bucyrus-Erie 28-L surrounded by snow drifts typical of a northern Wisconsin winter, this drilling crew drilled through 160 feet of glacial drift while putting down a 24-in. municipal well for the city of Cumberland. The well was completed at 500 feet. The rig belongs to the McCarthy Well Co., Minneapolis, Minn.

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VOLUME 25 FEBRUARY, 1951 NUMBER 2

Read What OWNERS SAY *about the* *Bucyrus-Erie* 20-W

"How do you like your new 20-W?" —that's the question we asked a number of owners of this great new successor to the 21-W. Here are a few typical comments.

'In Class by Itself'

For its intended use, the 20-W surpasses any machine ever operated by us or seen operated by us. It is definitely in a class all by itself.

Jos. Laberge, Quebec, Canada.

'I'll Take the 20-W'

I have run three kinds of rigs and I'll take the 20-W. All the well drillers from a good way off have already come to see my machine.

Milton J. Ebert, Illinois.

'None Drill as Fast'

I have seen a lot of machines running but there are none that run and drill as fast as the 20-W.

Amos Retzlaff, Wisconsin

'More Strokes Per Minute'

Our 20-W does more strokes per minute than any other rigs we've used. We are well pleased with this portable and compact unit.

Harry C. Macomber, Belyea and Macomber, Inc., New York.

Find Out for Yourself

Write for complete information on the 20-W and on the larger 22-W and 24-L machines.

'No Other Machine Can Compete'

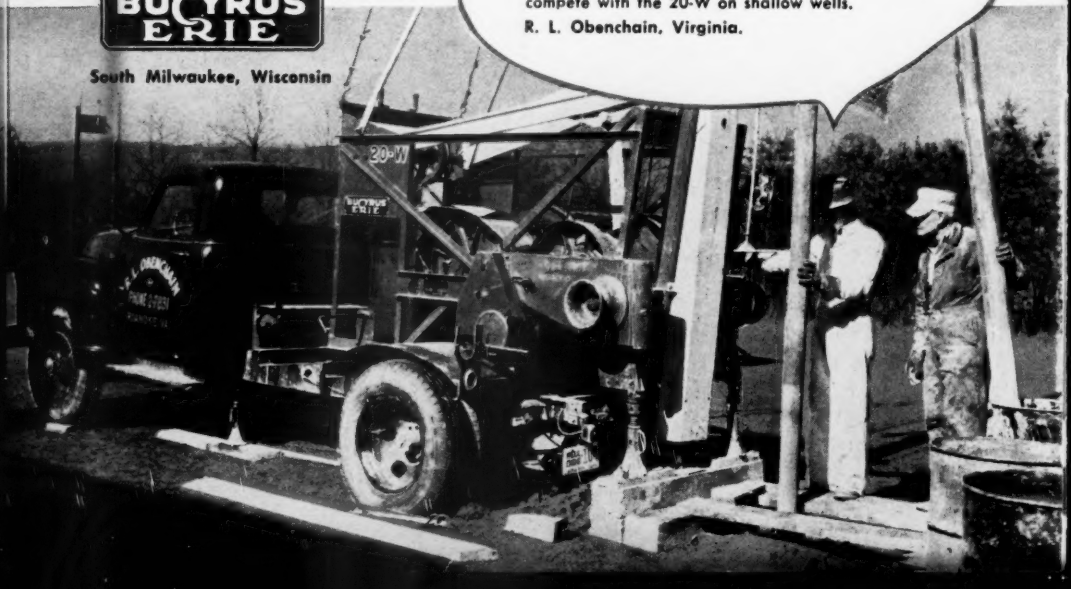
I've been drilling a long time — this is my 26th year. I have not seen the machine yet that can compete with the 20-W on shallow wells.

R. L. Obenchain, Virginia.

BUCYRUS ERIE

sswsoc

South Milwaukee, Wisconsin



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Put a Bee Jay on the job!

Customer satisfaction doesn't stop with a good drilling job. Dependable *pumping* is important, too. When you install a Byron Jackson pump you can be sure of solid customer satisfaction. The new BEE-JAY pump, a compact, low-priced deepwell turbine designed for 5 and 6 inch wells, is a customer-pleasing answer to general domestic water supply and small irrigation work. Other Byron Jackson pumps are available for practically every water supply need, standard or special. Be sure of complete and lasting customer satisfaction on every water supply job. Find out now about a Byron Jackson Pump dealership in your territory. *Write today!*

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Send me a copy of the new Bee-Jay Pump Bulletin. Also include full information on a BJ Dealership in my town.

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CITY_____ STATE_____

No Obligation, of course

• The Drumheller Valley as viewed from top of Orkeny hill. Beds of dolomite are prevalent in the area.

Prospecting and Drilling In Drumheller Valley

THE story of the Province of Alberta, Canada, is primarily one of farming and of mining. Three-fifths of its total area of over 255,000 square miles, or more than 97 million acres, it is estimated, can be profitably used for farming. Besides its wealth in fertile farming land, Alberta also contains extensive deposits of coal and other minerals. It is the leading coal producer of the Dominion, and its reserves—mostly lignite and bituminous—are believed to occupy 25,000 square miles.

The story of drilling contractor Bob Russell follows closely along these lines. Russell, who lives in the town of Drumheller, Alberta, has been in the drilling business for 15 years. Prior to this, he was a farmer, and still lives on an 800-acre farm which he owns. Operating within 35 miles of Drumheller, Russell specializes in drilling farm wells, holes for cesspools, industrial holes, and in making test borings for mining companies. The latter jobs account for a great part of his yearly volume of business.

Whether drilling water wells or doing mine prospecting, this Canadian driller delivers the ultimate in satisfactory performance. His story is the story of Alberta, the province of farms and mines.

Drumheller, located approximately 94 miles northeast of Calgary, stands in the center of an extensive coal mining area. In the course of a year, Russell is called upon to drill many bore holes for this industry. The holes, which run from 100 to 550 feet in depth, occasionally down to 600 feet, are used to carry electric wires or cables into the mine workings and, on occasion, to pump water out of the mine shafts.

Some coal mines in the Drumheller area run back two or three miles underground from the mine entry. The cost of stringing electric wires this distance underground is tremendous. Too, the drop in current is considerable and, consequently, the mining machinery does not operate at peak efficiency. These problems are overcome through the use of bore holes.

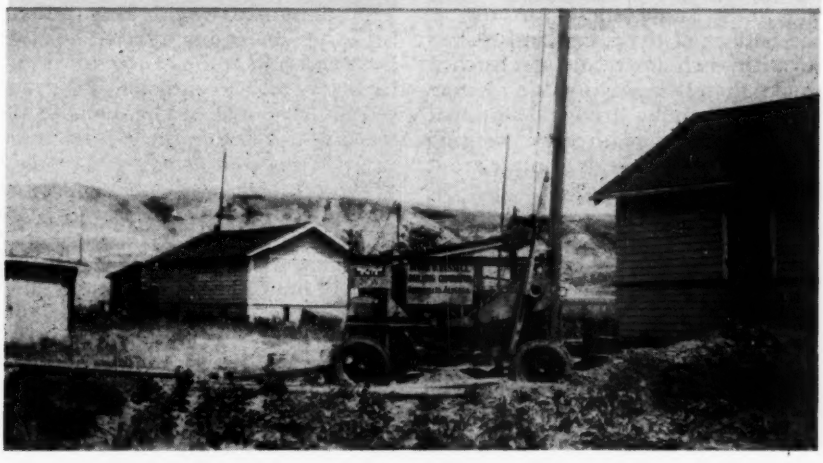
Before Russell moves his drilling rig onto the job, an extensive study of the mine area is made. Mining engineers survey the surface of the ground, about two miles away from the mine entry, and locate the exact spot where men are working underground. There Russell brings his machine, rigs up, and begins to drill thr ough to the workings below.

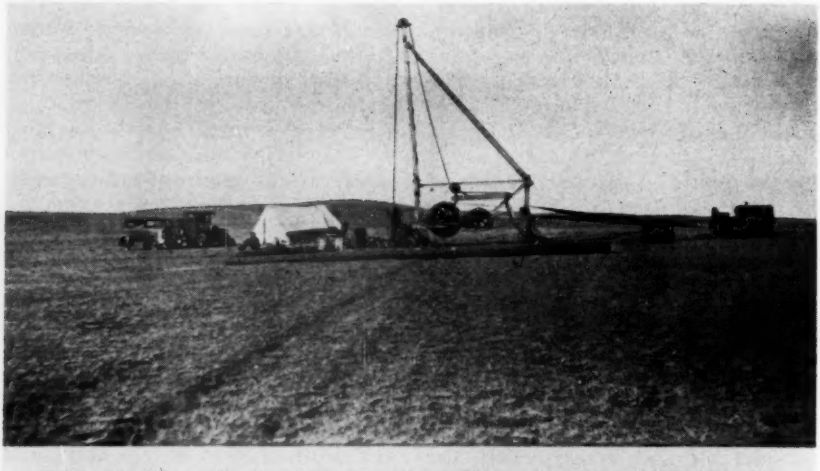
Naturally, these bore holes must be free from moisture. Otherwise, water would seep into the mines, flood the shafts, and perhaps endanger the lives of the men working underground. Of one bore hole drilling job, handled several years ago, Russell can only recall the long line of "tough luck" he experienced.

Couldn't Stem Flow in Well

This hole went down 386 feet to the mine workings. Russell hit water at a depth of 80 to 90 feet, and could not stem the flow at all by using a bailer. Bob continued the drilling operation and got down to a depth of 225 feet, even though the pressure of the water made drilling a very slow process. Some shale, becoming wet, expanded and fell into the hole, adding to Russell's difficulties. "I should have shut the water off with

• Russell drilled a cesspool hole into the old workings of an abandoned seam of coal on this job. The occurrence is a common one in the Drumheller area. The rig is a Bucyrus-Erie 21-W.





• With this old wooden rig, driven by a Caterpillar tractor, Russell drilled his deepest bore hole for a mine, going down 537 feet. Three and one-half tons of casing went into the hole.

casing in the first hundred feet," Bob remarked, "but because of the casing shortage which prevailed in the early postwar years, we were fortunate to have enough casing to case the hole at all."

At the 225-ft. level, Russell inserted 5-in. casing into the hole, shut off the flow of water, and began drilling again. Things were going well until the water found another course at the bottom of the casing and rushed in with such force and cut such a cavity that Bob was unable to stem the flow even by driving additional casing. Finally, he hired a cementing crew from the oil fields to place grout material into the hole.

After the casing was capped, a grout pump was connected to the drill hole and cement run into the annular space between the casing and the diameter of the hole. After the cement had set, the hole was cleared by drilling out the cap and grout remaining in the hole. The flow of water was shut off entirely. No more water was encountered in drilling the balance of the hole, and the job was brought to a successful conclusion.

Under normal conditions, Russell would have handled this job in a different manner. At the 225-ft. level, he would have inserted casing in the hole to shut off the water. Then, he would have drilled down to within five or 10 feet of the mine workings. This done, he would have pulled back the 5-in. casing, reamed out the hole, and driven the casing down until the water was shut off. Then, he would have drilled the balance of the distance, inside the casing, until the job was completed.

Russell works alone on most of his drilling jobs, using a trailer-mounted Bucyrus-Erie 21-W. He also owns an old wooden rig, equipped with manila rope line, which he operates occasionally "in a pinch." If the Alberta winter is not too severe, Bob works year 'round. Once he was under contract and was forced to drill for three weeks in –35° weather.

When handling prospect drilling

for the coal strip mines that prevail in his territory, Russell uses a Baker cable tool core barrel in connection with his 21-W rig. Bob drills within 10 to 15 feet of the coal seam with his rig, and then begins the coring operations. The core tests are made by the coal companies to obtain a real and accurate knowledge of underground conditions.

The core barrel consists of two main parts—an outer drilling barrel and an inner core-retaining tube. For taking the core, the core barrel is placed in the tool string in the same position as the bit.

The form in which the core is recovered depends greatly upon the character of the formation. In the Drumheller area, the mine operators are primarily concerned with the rock formations contained in the coal seams. In such hard formations, the cores are not recovered in one long piece, but take the form of biscuits of varying lengths.

In drilling bore holes for the coal mines, Russell often runs into moving-in problems. On many of these jobs, the bore hole locations on the surface often come out halfway up the side of the cliff. For transporting equipment to and from these job sites, Bob uses a truck, a Caterpillar tractor, and a jeep.

The mining companies usually bulldoze a trail to the location of the job, and Russell moves his equipment over it. These companies try to cut costs to a minimum and, as a result, the trail is very rough and steep.

Russell takes his truck drawn, trailer-mounted 21-W to the last place along the trail where it can be turned around and backed into position. Otherwise, there'd be no place farther up the trail to turn the rig around and drive out when the job was completed. "The 'Cat' comes in handy here," Bob says, "and the jeep, too, for getting back and forth to work."

• This job was a 250-ft. well drilled for a suburban home owner last June. Russell is the man on the left.

Many Formations Encountered

The usual types of underground formations encountered in Russell's operating territory are shale, bentonite clay, limestone, sandstone, ironstone, granite, blue, green and brown shale, oyster bed gravel and quicksand. The water-producing formations in the area are sandstone and blue shale which ordinarily run five to 25 feet thick and occur at varying depths, depending on the location.

The usual Russell well ranges from four to nine inches in diameter, and from 120 to 150 feet in depth. His deepest water well to date measured 325 feet, and proved to be an unusual hole since 250 feet of sand formation were encountered in drilling the well. His deepest bore hole went down 537 feet. The greatest yield Russell ever had from a well was 3,220 Gph. This was a test pumping made on a municipal well with a

(Continued on page 27)

Make Figures Work For You

by Robert F. Welch

LIKE all business men, drilling contractors deal every day with problems involving simple arithmetic. And this goes for the big business man who owns a battery of calculating machines as well as for the little fellow who keeps his office in his hip pocket. A staff of accountants and bookkeepers can handle routine work, but the boss always needs a scratch pad handy when he's going over financial statements or computing a quick run-down on a new job.

Many contractors have gone broke simply because of their inability to figure accurately. Usually such failures occur as a result of mistakes in estimating. The most glaring errors sound impossible — not including moving time or failing to properly anticipate the cost of setting a rig up for operations. These costly oversights must be guarded against by constant vigilance, and the whole task becomes much easier if arithmetic is used as a tool instead of becoming an unwelcome chore.

There are various short cuts which will cut down on time spent in estimating, striking trial balances, compiling reports and tax forms. By all means invest in an adding machine if possible. Contractors usually find it's a good investment to subscribe to a bookkeeping service when they can't justify a full-time accountant on the payroll.

Perhaps the most important point to remember is the "slide-rule approach." This is simply our term for making sure the decimal point is in the right place and the answer is approximately correct. For example, if you're multiplying 4.85 x 1,986 you know the result will be a little under 10,000 (5 x 2,000). Similarly, when you're adding a column of figures a glance down the left hand digits will give you the approximate total. Such a precaution takes only a moment and eliminates those obvious errors which creep in without our realizing it. Use this same technique to quickly verify invoices for pipe, fuel and other materials.

Getting down to finer points, here are some tips to make your arithmetic more speedy and accurate.

Addition by columns: Add each column separately and move the sum to the left one place each time. To check the grand total, repeat from left to right.

Example—

7,832	
4,563	
9,138	
3,561	
	14
	18
	19
	23
25,094	

In handling the numerous bookkeeping chores associated with his drilling business, the contractor deals with problems every day involving simple arithmetic. Here are a few suggestions designed to make your job an easier one.

The main advantage in adding by columns is to facilitate checking back. You don't have to worry about "carrying," except in the simple addition at the bottom. If your total is 100 more or less than it should be, verifying the 19 does not mean you have to add the other two columns on the right all over again.

Subtraction by addition: Rather than deducting the smaller from the larger figure in the conventional fashion, add to the lower figure whatever number will make it equal to the top one. In the following example, instead of thinking that 7 from 16 is 9, think that 7 plus 9 equals 16.

Example—

7,856
4,187

3,669

This is a more fool-proof method than the usual procedure, since most errors in subtracting come from overlooking the fact that you've borrowed from the figure to the left. By converting the process to addition, the likelihood of a mistake is materially less.

The addition system for subtracting is particularly valuable when you're balancing ledger accounts, or wish to find the difference between two columns of figures. A quick look will tell which group of figures is the larger, and these are added in the usual way. Insert the same total below the smaller group of figures, leaving a space for the balance. Then foot the second group, supplying the numbers necessary to make it agree with the total. This saves adding the columns separately, subtracting the two, and writing the difference.

There are various tricks you can use to shorten or check multiplication. For instance, when you wish to multiply a number by five, add a zero and divide by two. When multiplying by 25, add 00 and divide by four. Similar procedures may be used practically for almost any percentage or fraction—multiplying by 12½ you add 00 and divide by eight, by 33⅓ add 00 and divide by three.

These shortcuts and others which follow may be used constantly or only for verification.

Use of factors: When one of the figures is easily factored, it sometimes helps to make two simple multiplications.

Example—781 x 28 (28 is equal to 4 x 7)

781
4

3,124
7

21,868

Multiplication by 15: Add a cipher and increase the larger figure by half of itself.

Example—98,432 x 15

984,320
492,160

1,476,480

Multiplication by numbers close to 10, 100, or 1,000, etc.

Examples—

4,567 x 102
456,700 (100 x 4,567)
9,134 (add 2 x 4,567)

4,567 x 998
4,567,000 (1,000 x 4,567)
9,134 (subtract 2 x 4,567)

When you have several figures to be divided by the same number, it's always easier to use the reciprocal of the divisor. The reciprocal is found by dividing one by the number. Thus, for 25 the reciprocal is .04.

Supposing you want to find out what percentage of your total cost is made up of labor, supervision, insurance, shop overhead and all the other individual expenses which are

(Continued on page 27)

The DRILLER

A JOURNAL FOR WATER WELL DRILLERS

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Potential Market For Water Systems Largest In History

THE largest potential sales market in history faces manufacturers of electric water systems in 1951. This was clearly indicated to manufacturers at the annual meeting of the National Association of Domestic and Farm Pump Manufacturers in the Sherman Hotel, Chicago, October 17, by Herbert C. Angster, executive secretary and director of the association.

"In 1939, there were 1,750,000 farms in the United States having electricity," Mr. Angster said. "Between 1939 and 1949, 3,200,000 more farms obtained electric power. And this even with a major war taking place. Since 1949, the total number of electrified farms has increased to five million or more and indicates that the 1951 market for electric farm pumps and water systems is the largest we have ever faced."

Plans for National Water Systems Month, May, 1951, were discussed and approved at the meeting. All were agreed that the special emphasis period is well established. National Water Systems Month in 1951 will be built around the idea of producing more and better food at the same time saving labor and conserving health in a period of mobilization.

Officers re-elected at the meeting were H. R. Lafferty, executive vice-president, Red Jacket Mfg. Co., Davenport, Iowa, president; D. L. McDonald, president, A. Y. McDonald Mfg. Co., Dubuque, Iowa, vice-president; and J. P. Curtin, vice-president, George D. Roper Corp., Rockford, Ill., treasurer.

Norman J. Gould, president, Goulds Pumps, Inc., Seneca Falls, N. Y., was elected to the Executive Board. Other board members include the officers as well as G. R. Deming, president, The Deming Co., Salem, Ohio; Robert M. Hula, vice-president, Clayton Mark and Co., Evanston, Ill.; J. C. Myers, president, The F. E. Myers & Bro. Co., Ashland, Ohio; and Herbert C. Angster, Chicago.

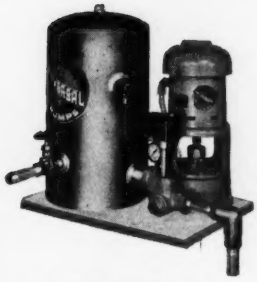
Floods Highlight Water Picture During November

FLOODS from heavy rains on both sides of the continent highlighted the Nation's water picture for November as it was reported by Geological Survey hydrologists in the latest *Water Resources Review.*

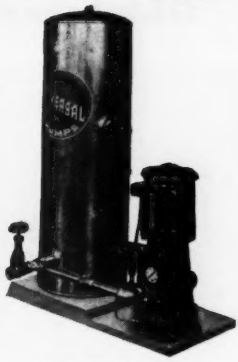
(Continued on page 26)

Rugged

THE HYPER-JET



THE CONVERT-I-JET



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NEWS OF THE MONTH

Oklahoma Drillers Meet In Norman

ABOUT 70 water well drillers and manufacturers' representatives attended the second annual convention of the Oklahoma Water Well Drillers Association which was held in Norman, Okla., November 24-25. Convention headquarters were located on the North Campus of the University of Oklahoma.

The two-day meeting opened with an address of welcome presented by the Honorable James Bullard, speaker of the Oklahoma House of Representatives. Nine men presented technical speeches during the convention, the talks dealing with subjects of interest both to association members and to all drillers in Oklahoma.

Some of the main topics of discussion were ground water supplies in Oklahoma and their development, the sanitary protection of well supplies, and license tag rates for drilling machines. Bill Wallace, association president, led the latter discussion, using the article "Review of License Fees Levied on Drilling Rigs" as the basis for his talk. This article appeared originally in the February, 1950, issue of *The Driller*.

Re-elected to the Board of Directors for one-year terms were George Provine, Miami, and L. F. Bales, Sayre. C. R. Frazier, Oklahoma City, was also elected a director for one year. The directors chose R. D. Sawyer, Chickasha, and Mr. Provine as association president and vice-president respectively for 1951.

The association's 1951 convention will be held in Norman again during the month of November. The exact dates of the meeting will be determined at the coming Board of Directors' meeting.

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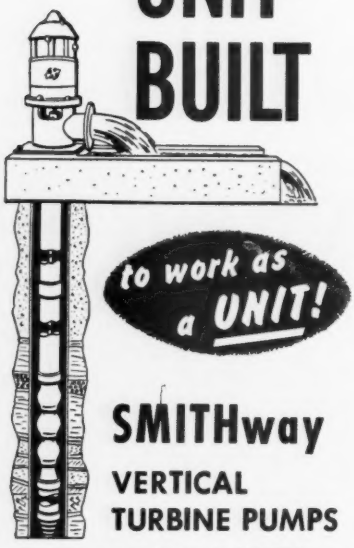

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ADC Holds Second Annual Meeting

FIFTY-TWO water well drillers were registered attendants at the second annual convention of the Associated Drilling Contractors which was held at the Hotel El Rancho in Sacramento, Calif., on October 5-6, 1950. Drilling contractors from northern and central California were in attendance as well as representatives of the Water Well Drillers Association of Southern California.

The two-day convention program was devoted to both technical and business sessions. The assembled drillers heard ten informative talks given, including a report from the Contractors License Board which was presented by N. J. Morrisey, registrar of contractors.

It was decided at one of the convention's business sessions that the three water well associations in California should hold a joint meeting for the purpose of discussing much needed state legislation. The legislation needed, it was decided, includes a modification of the State Vehicle Code to eliminate the present language of the law which makes certain water well drilling rigs liable for weight fees in addition to the nominal licensing fee, and that the present contractors' licensing laws should be strengthened to require the licensing of all water well drillers in the state.

At a later meeting, held on November 2, 1950, officers and directors for 1951 were elected. The Board of Directors includes L. V. Evans of Napa; R. A. Johnson of Napa; W. A. Crislip of Santa Rosa; R. L. Norris, Jr., of Sacramento; J. F. Guardino of San Jose; R. P. Garcia, Jr., of Palo Alto; F. W. Porter of San Jose; T. Fulton of Elk Grove; and

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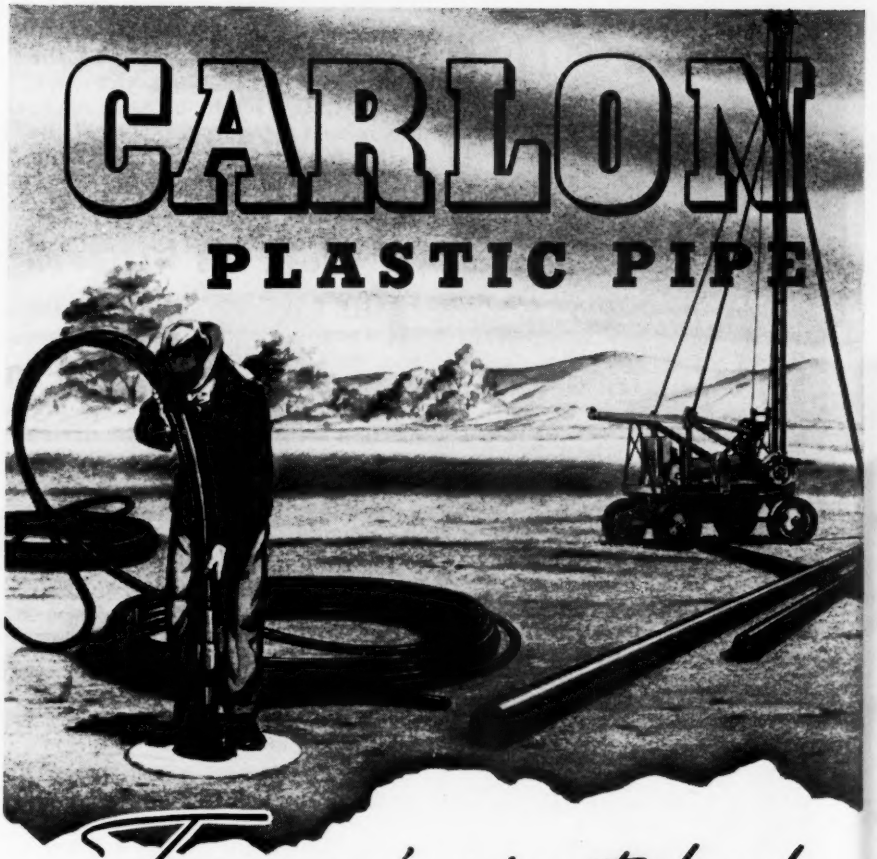

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Surface space is not required except for service connections. Problems, of location, appearance, noise or maintenance accessibility are entirely eliminated.
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R. L. Clark of Stockton. Mr. Guardino was named chairman of the board, and Mr. Fulton, vice-chairman. R. C. Jacinto, of Sacramento was named secretary-manager of the association.

Oregon Drillers Elect '51 Officers

THE first annual meeting of the Oregon Drilling Association, Inc. was held at the Multnomah Hotel, Portland, on December 1. A highlight of the program was the election of officers to serve during 1951. Those elected were: president, Ed Steinman of Portland; vice-president, Ed Jannsen of Reedville; and secretary, Art Gaunt of Aloha.

Eight new members were taken into the association at the meeting along with two associate and seven honorary members. Talks were given by personnel representing the U. S. Geological Survey, the State Board of Health, and the State Department of Geology and Mineral Industries.

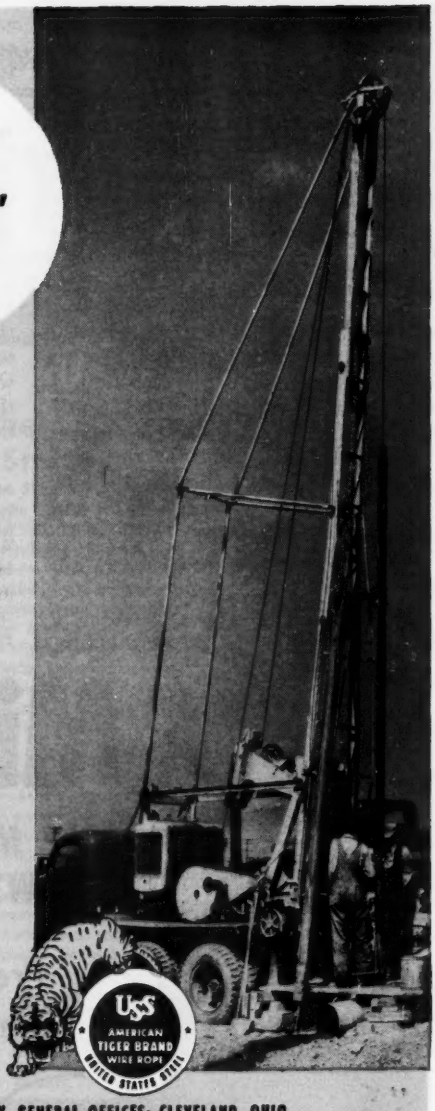
The group's next meeting will be held on March 31 in Eugene, Ore. Further details will be given gladly by Mr. Gaunt. His address is Box 47, Aloha, Ore.

Seattle Host To Washingtonians

THE fifth annual meeting of the Washington State Well Drillers' Association was held at the new Armory Bldg. in Seattle, Wash., on November 10-11, 1950. About 50 well drillers registered for the two-day meeting.

As at the NWWA meeting in Denver, the main topic of discussion was the pipe shortage and what could be done to improve the situation. The chairman of the meeting, president

"GIVE ME A LINE WITH LOTS OF REACH"



THAT'S what you get with Tiger Brand Mor-Spring drilling lines. You can feel the difference in your rig. Mor-Spring lines have a springy action that absorbs shock with the least jar and gives you more footage per day.

You get longer service life, too, because of the built-in resistance to fatigue and abrasion.

For complete information, write for our pocket-size booklet on American Tiger Brand Wire Lines for Oil, Gas and Water Wells.

AMERICAN STEEL & WIRE COMPANY, GENERAL OFFICES: CLEVELAND, OHIO
COLUMBIA STEEL COMPANY, SAN FRANCISCO • UNITED STATES STEEL EXPORT COMPANY, NEW YORK

USS AMERICAN TIGER BRAND WIRE LINES

UNITED STATES STEEL

Oliver Zinkgraf, appointed a committee to prepare an estimate of the 1951 pipe requirements for the State of Washington. When completed, this estimate will be presented to the NWWA, as was requested at Denver, so that it and similar estimates from all other states may be presented to those in control at Washington, D. C. when the time comes for making an allocation of pipe for 1951.

George Fish of Spang & Co., Butler, Pa., gave a demonstration of the proper method of dressing, heating and tempering drill bits. William J. Walsh of Bucyrus-Erie Co., South Milwaukee, Wis., presented a paper entitled "More Jobs — Bigger Profits." The annual banquet, held on Saturday evening, November 11, concluded the convention.

Tacoma was selected as the site for the 1951 annual meeting which will be held there on November 9-10. Meanwhile, regional meetings will be held in Moses Lake, Wash., on March 17 and in Walla Walla, Wash., on July 21.

Missouri Drillers To Meet In Sedalia

FOR the first time in several years the city of Rolla will not be the site of the Missouri Water Well Drillers Association's annual convention, according to Dale L. Fuller, service secretary. Instead, Sedalia will play host to Missouri drillers at their 15th annual convention, to be held there on April 16–17.

Mr. Fuller reports that both inside and outside equipment displays will be available for inspection by the drillers. Inside displays will be located in the Sedalia civic auditorium, and all technical and business meetings will be held there. The building is located in one of Sedalia's city

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AND MICROMET FEEDERS
FOR WELL WATER SYSTEMS
TO
Prevent Red Water
Eliminate Lime Scale
Control
Corrosion
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CALGON, INC.
Hagan Building
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"The Greatest Name in Cable Tools..."

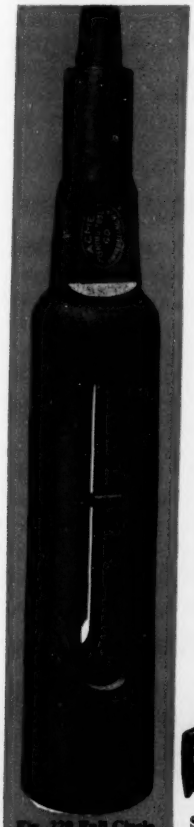


Fig. 229 Full Circle Slip Socket

Acme

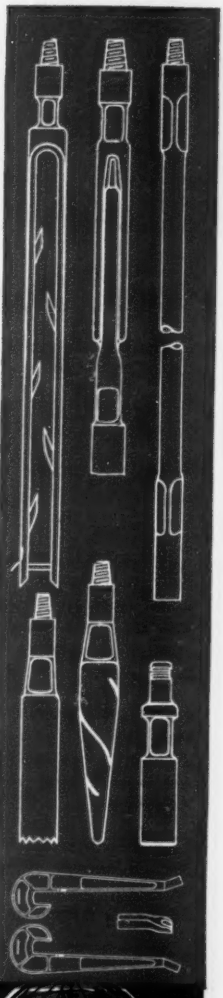
TRUSTWORTHY SINCE 1900

Takes Toughest Fishing Jobs In Its Stride

Use Acme's Full Circle Slip Socket for severe jarring fishing jobs — in 5 5/8" to 15½" holes. Stop pin regulates distance fished-for object can enter socket. Offers definite advantages over regular 2-slip socket, since 4-slips form complete circle around fish — for grip-tight hold and equal distribution for jarring pressure.

Slips for Full Circle Slip Socket

Slips forge-welded in pairs, 2-reins and fastened at top with bridge. Slips forced into bowl with positive spring action. Bored from top-grade (weldless) steel forgings. Also made special of alloy steel. (Long rein sockets on special order.)



The tool featured above — one of 95 in our new Catalog — is fashioned by 51-years of superior "know-how" . . . providing more of EVERYTHING needed in an Acme String.

Mail penny postal NOW for your FREE copy of Acme's new 36-pg. Catalog and Tool-use Manual — expressly compiled and packedful of "cash-able" information for Water Well Drillers.

Acme Fishing Tool Co.

PARKERSBURG, W. VA.

To-be-Sure — Always Ask for Acme's.

Pump Handle Pete Says:

More Comes from wells than water

When you recommend a Jensen Jack for a well, more is going to come up than water. The customer who takes your advice will get water plus dependability, economy, and long pump jack life.

You, the driller, will get a long and faithful friendship from this owner—friendship that means more business through recommendation to his friends.

Be sure you have all the information on Jensen. Write a card or letter to 1016 Fourteenth St., Coffeyville, Kansas for free information.

JENSEN
BROTHERS MFG. CO.
COFFEYVILLE, KANSAS, U. S. A.

parks, and a large graveled parking space, surrounding the building, will be used for outside exhibits.

Convention headquarters will be in the auditorium. The annual banquet will be held, however, in the Hotel Bothwell. A more detailed description of the convention program is forthcoming, Mr. Fuller indicated.

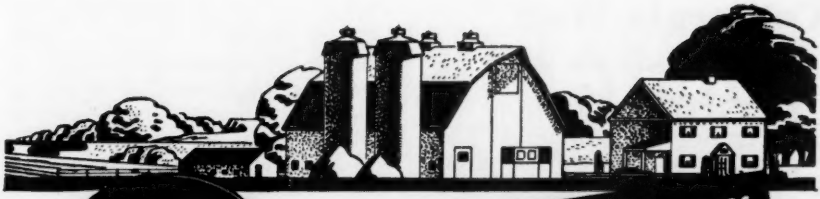
Badgers Set Dates

THE Wisconsin Well Drillers, Inc. will hold their 23rd annual convention in Green Bay, Wis., April 19–20, it was announced recently by Ralph B. Nienow, secretary-counsel of the organization. Convention headquarters will be located again in the Hotel Northland.

A large exhibition hall will be available for inside equipment displays, Mr. Nienow indicated. Further information on the convention will be announced as soon as all arrangements have been completed.

Sinking Test Holes

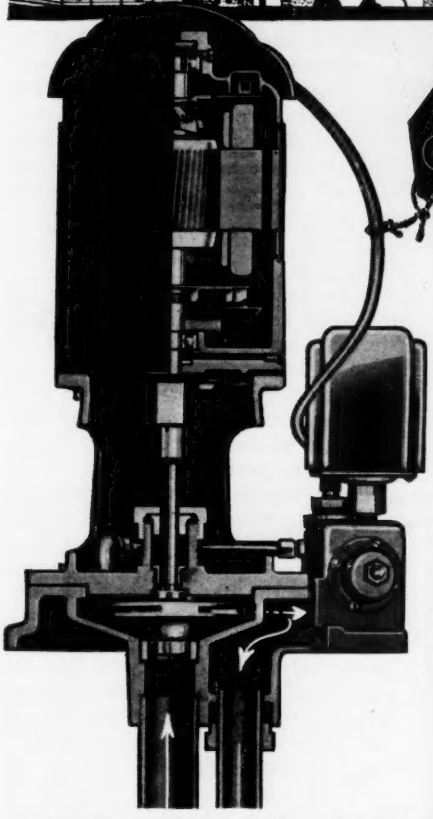
• With a Bucyrus-Erie 20-W, driller C. L. Jennings of New London, Iowa, sinks test holes for footings on site of proposed new hospital addition in Burlington, Iowa.



ITS FEATURES KEEP OWNERS

SOLD

ON ITS PERFORMANCE



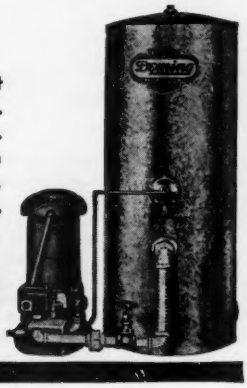
VERTICAL CONSTRUCTION of Deming Jet Pumps permits all moving parts to hang vertically from ball bearings. That feature assures minimum wear on moving parts.

Motor is the highly efficient **CAPACITOR** type with built-in overload protection on the smaller sizes.

Pump shaft is stainless steel. Coupling is *slotted compression sleeve* type insuring a true running pump and motor shaft assembly.

The fully enclosed impeller is dynamically balanced and accurately bored to fit *tapered* end of shaft. Perfect alignment of shaft and impeller assures smooth, quiet operation and long life of the Deming Deep Well Jet Pump.

Capacities of Deming Jet Pumps for deep wells of 150 feet or less in depth range from 200 to 4500 gallons per hour. All sizes are available with either two pipe or single pipe jets. Both types can be placed at a reasonable distance away from the well or directly over the well. For complete information, write The Deming Company, 512 Broadway, Salem, Ohio.



DEMING

THE COMPLETE LINE

PUMPS AND WATER SYSTEMS

California Well Registers 200° F

AN INTERESTING article, concerning the drilling of "California's hottest water well," appeared recently in the *Los Angeles Times* under the by-line of Ed Ainsworth. The well was drilled by Bill Tarbutton of Desert Hot Springs, Calif., just off "the back road that runs parallel to the main highway from the Desert Hot Springs area into Indio."

Tarbutton's well registered a temperature of 200° F., which is almost at the boiling point. The well is said to be the hottest one ever drilled in California, although the U. S. Bureau of Mines, Washington, D. C., says there are a few wells in Oregon around this temperature.

When Tarbutton brought in the well, he recalled how his granddaughter, Suzie, had been cured of a mysterious hip ailment by taking hot baths in the desert. The California driller thought the water from his well might be of similar therapeutic value to ailing children. So, he made a public offer on October 23, 1950, to give five acres of land right alongside the well to any responsible group who would agree to erect a hospital there for crippled children. Tarbutton feels certain another similar well can be brought in on the five acres he is offering.

Water Drinkable

The hot water well goes down 331 feet, and the water stands at about the 75-ft. level. It pumps about 2,500 Gph. The water produced by the well is drinkable and does not have the unpleasant odor usually associated with mineral or sulphur water. Tarbutton and his assistant in the drilling operation, Cliff Hudspeth, and their wives have held several picnics at the well site and have poached eggs and made coffee and tea, using the hot water of the well.

Source of the hot wells in this area, which extend for several miles, is presumed to be the famous San Andreas Fault, "mother of earthquakes," which runs throughout the region. An underground "dike" is said to dam up the hot water.

With water bursting forth from the well with a roar of steam, Tarbutton couldn't help but think what a wonderful Turkish bath the well would make since a chemical analysis of the water shows it has enough mineral properties to be helpful in hot baths. However, Tarbutton waved the thought aside to consider something more important—the day that crippled children would be gaining relief from their ailments through use of his hot water well.

Lower Final Shot

• Driller Lattie Goggins of Elvins, Mo., finished shooting a water well for the city of Farmington, Mo., recently. Shown here, lowering the shot into the well, are (left to right): a Missouri State Health Department official; tool pusher Earl Janis; driller Almon (Coony) Kennedy; another health department official; and Frank Zimmer, superintendent of the Farmington Light and Water Department.

NOW—ONE WATER SYSTEM

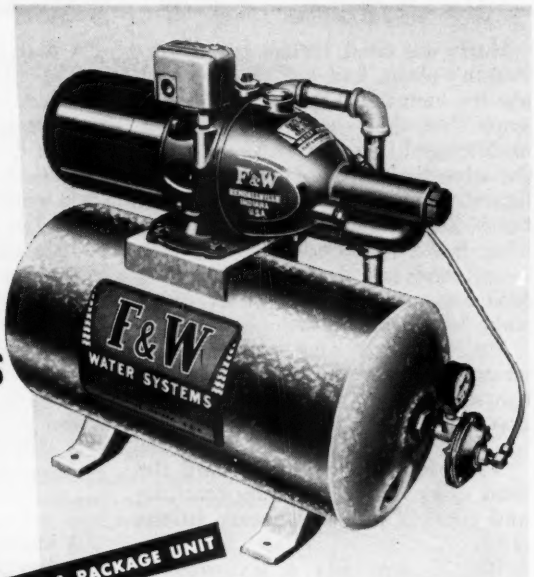
for

Deep Wells

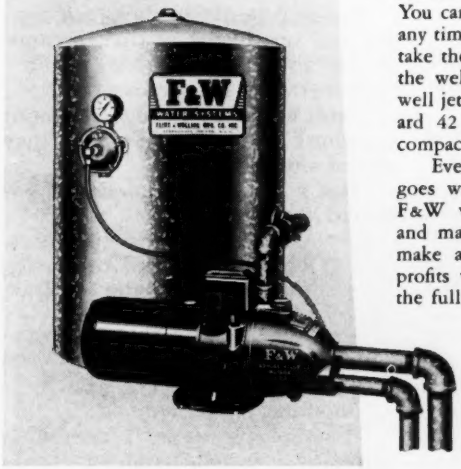
Shallow Wells

Regular Pressures

High Pressures



WITH VERTICAL TANK . . AS A PACKAGE UNIT



It's the new F&W Multi-Purpose Water System. You can install it on a shallow well and then, at any time, change it for deep well use. You simply take the ejector off the pump and put it down in the well as you would with any two-pipe deep well jet. The Multi-Purpose comes with the standard 42 gallon tank or as a "package" with the compact 12 gallon tank.

Every pump is tested at the factory and it goes without saying that it has typically fine F&W workmanship and materials. You'll make and *keep* more profits when you sell the full F&W line.

DEALERS! New F&W Catalog in color is real sales tool. Send for a copy.

FLINT & WALLING MFG. CO., INC., 297 Oak St., Kendallville, Ind.

WIT BITS

Harry was tired, listless, run down, couldn't sleep, had lost his pep and was the victim of sour stomach—and worse than that, realized that he was middle-aged. Finally won over by the advertisements for a widely-publicized patent medicine, he bought a bottle and drank it down. That evening, he went to bed and fell asleep —and slept, and slept, and slept. The next morning his wife went in to wake him up.

He stretched and yawned and scratched his head, then opened one eye and said: "All right, Ma, I'll get up—but I ain't going to school!"

The group of ostriches heard the loud noise of someone approaching and quickly hid their heads in the sand.

But it was only a venturesome young ostrich returning from a cross-country jaunt.

He pounded to a sudden stop and demanded: "Well, where is everybody."

Traffic Officer: "Hey! You can't turn around in the middle of the street."

Lady Driver: "I can, too. I'm a much better driver than you think."

A passenger in a plane sat relaxed at a window drinking in the spectacle of the heavens gliding by. Suddenly a parachutist appeared and drifted by.

"Going to join me?" cried the parachutist.

"Thank you very much," replied the passenger, "I'm very happy just where I am."

"Just as you like." called back the parachutist. "I'm the pilot."

A man went into a clothing store, and asked the price of the suit in the window. "Meester," said the owner approvingly, "you picked the bast soot in the store. Jost to show you I like to do bizniz with a men with soch good jodgment, I'll tall you what I'm goink to do. I won't ask you should give me $65 for the soot. I won't esk $55. I won't even esk $45. To you, my frand, the price is $35."

The customer listened impassively. "Tenks. $35 I won't give you and $25 I won't give you eider. My offer is tan dollars."

"Sold!" said the merchant. "That's the vay I like to do bizniz. No chiseling."

A visiting Texan was enjoying the wonders of California as pointed out by a native.

"What beautiful grapefruit," he said as they passed a grove of citrus trees.

"Grapefruit! Why those are lemons and small ones at that, because of the comparatively bad season," explained the Californian.

"And what are those enormous blossoms?" queried the Texan as they moved along.

"Just a patch of dandelions," answered the guide.

Presently they reached the Sacramento River. "Ah," said the Longhorn, "someone's radiator is leaking."

"Well son, what have you been doing all afternoon?"

"Shooting craps, mother."

"That must stop. Those little things have as much right to live as you have."

Why the *Monitor* Line IS SO EASY TO SELL..

- **Monitor Units Have Sales Appeal**
- **They're Pre-Sold Through Advertising**
- **Monitor Merchandising Helps You Sell**

Sales appeal that breaks down buyer resistance is part of every Monitor pumping unit. Quiet operation . . . engineered efficiency . . . positive, forced oiling are the mechanical sales advantages. These advanced features are no secret to your customers and prospects. Hard-hitting ads in leading farm papers produce thousands of inquiries . . . sales literature and booklets clearly explain and sell . . . wall hangers and displays call repeated attention to the Monitor line—sell its outstanding pumping features.

Let *Monitor* Pre-Sell Your Customers WITH PROVED, EFFECTIVE SELLING AIDS*

Dealers tell us that the Monitor line is easier to sell. Cash in now . . . get in on Monitor leadership. Boost your sales and profits with Monitor pumps and water systems. Write or call sales branch nearest you.

* Monitor Selling Tools —FREE To Our Dealers

CONTACT ONE OF THESE CONVENIENT *Monitor* SALES BRANCHES

Cedar Rapids, Ia.
Enid, Okla.
Fort Dodge, Ia.
Hutchinson, Kans.
Kansas City, Mo.
Madison, Wis.
Minneapolis, Minn.
Omaha, Nebr.
Bloomington, Ill.
Fargo, N. Dak.
Winnipeg, Man., Canada

Carlon Announces Catalog Series

CARLON Products Corp. announced recently the availability of a series of five different 4-page, illustrated, multi-colored catalogs. The series consists of one general brochure and four booklets which cover Carlon "E," "EF," and "T" plastic pipe and Carlon "C" plastic tubing respectively.

The general brochure, entitled "Carlon Plastic Pipe," covers six types of flexible and rigid plastic pipe and tubing recommended for a wide variety of applications. Included in this publication are the applications for which each pipe has been specially developed. Specifications and physical properties are charted. The four booklets carry the title of the particular pipe with which they are concerned.

The catalogs or brochure will be sent upon receipt of a letterhead request. Write the manufacturer at 10225 Meech Ave., Cleveland 5, Ohio.

Advance Offers Pump Bulletins

TWO new catalog bulletins, fully illustrated and including performance tables, are available from Advance Pump Co., Hamilton, Ohio, or Berkeley, Calif. The bulletins describe the company's new 100% self-priming shallow well systems and versatile high-pressure multistage pumps.

The new shallow well unit is called the "All-American." Completely self-contained, including horizontal tank and foot valve, ready to install, it delivers up to 975 Gph, according to the manufacturer, yet measures only 12 x 28 x 30-in. high.

The new multistage series, called the Amazon, is available in three different sizes for shallow wells and five sizes for deep wells, either with two-pipe ejector, or with one-pipe ejector for small diameter deep wells.

For further information write directly to Advance Pump Co., Hamilton, Ohio, or Berkeley, Calif.

New Assn. Formed

AN association for drilling contractors in Tennessee was formed recently, according to word received from driller W. N. Robinson of Clinton, Tenn. Any drillers in the state, interested in joining the organization, are urged to write to the secretary, E. S. Eatherley, Lebanon, Tenn.

Mr. Robinson's letter indicated that a meeting was to be held in Crossville, January 5. The next organizational meeting will be held in Knoxville, February 23 at Hotel Andrew Johnson.

Floods Highlight . . .

(Continued from page 10)

High water was reported generally throughout New England and Canada's Maritime Provinces, with record-breaking floods in Pennsylvania and New York. On the west coast runoff was excessive throughout most of the Columbia River Basin and outstanding floods were recorded for California and Nevada.

Nevertheless, the runoff pattern in the West as a whole continues much the same as has existed for many months despite the record-breaking flood flows in most of the main streams draining the Sierra Nevada from the Yuba River south to the Kern River. There the floods were the result not only of a series of rain storms but were swelled by an almost complete melting of the snow cover

in northern California during the period November 15–22. Flood conditions still persist in Nevada as a result of heavy rains December 2–3.

Runoff in the Colorado River Basin continues generally deficient and at Grand Canyon was recorded at only 83% of normal. Despite flood conditions in northern California the drought in the southern part of the state continued with little change during November. Groundwater levels continued to decline in the Cuyama Valley with the level in one well the lowest since the record began in 1941.

Elsewhere in the Nation the picture was spotty. Drought conditions prevailed throughout Texas; the water levels in many wells in Kansas that reached their highest recorded stages during October are two feet higher than their average level for November; Indiana recorded runoff at key gaging stations as "excessive," averaging 700% of normal. Indiana lakes were generally slightly higher than normal.

Make Figures . . .

(Continued from page 9)

included. The hard way is to divide each expense by the total. Instead, use the reciprocal of the total and multiply. Percentage figures will enable you to make an instant comparison between statements. For instance, if dollars of overhead have doubled but percentage-wise the cost goes down, you know that the expense is not out of line.

It's always a good idea to have another person check your figures. Failing that, go over them yourself later when you're not so apt to repeat a mistake made the first time. And remember that slipshod calculating is a sure road to the poorhouse.

Russell . . .

(Continued from page 7)

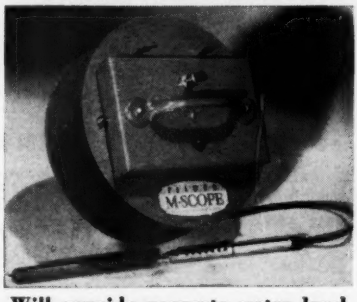
rotary pump. The water producer, in this instance, was coarse gravel.

Russell puts good work ahead of speed in importance, but strives for both. He considers 30 to 40 feet per 10-hour day a fair drilling average in his territory. On two or three jobs, however, he has made 120 feet in six hours.

For dressing bits, Russell uses the "hard-surface" method. He finds this to be one of the greatest time savers in his whole business. "I often have had these bits drill 250 feet before they need to be resharpened. I farm the work out to a welder in Drumheller."

As to the business outlook, Russell says: "Possibilities look quite favorable. Right now, I have as many jobs as I can handle. I find my late type rig gives me increased business."

WATER LEVEL INDICATOR



Will provide accurate water level data for drawdown studies under pumping and static conditions. Self-contained battery supply. Immediate shipment.

PRICE ONLY

250 feet of cable $37.50
500 feet of cable $47.50
1000 — 1500 Feet Cable
Quoted Upon Request

FISHER RESEARCH LAB., Inc.
PALO ALTO CALIF.

The demand is for the Pump Marked

with its record of *PROVED PERFORMANCE*

Authorized dealers everywhere tell us that the SUPIRJET is its own best salesman. That's because the ruggedly built units are providing a low cost, dependable supply for all water needs.

Users like the SUPIRJET because they experience so little mechanical trouble. It proves the efficiency of correct pump design with only one moving part—the impeller assembly—and the self-adjusting, tamper-proof mechanical seal which minimizes leakage and eliminates frequent adjustment.

And you'll like the opportunity to cash in on a ready-made market with big sales possibilities. Get in touch with us today and learn how you—as an Authorized SUPIRJET Dealer with a complete merchandising plan—can build a profitable volume in domestic water systems.

SUPIRJET

Ingersoll-Rand

11 Broadway, New York 4, N. Y.
Warehouses in 26 Cities

485-19

Bargain Counter

All advertising in this section is payable in advance. Enclose your check or money order with copy. Rate: 30c per line. Minimum charge $1.20. No discounts; no commissions. Count your own copy to avoid delay. The average line contains 28 characters (20 characters if all capital letters are used). Count spaces and punctuation as one character each. Allow 10 characters for box number if blind advertisement is desired. Closing date—10th of preceding month. Example — January issue closes December 10th. Be sure to address separate inquiries to each advertiser by using the correct box numbers. Mail Box inquiries care of THE DRILLER, South Milwaukee, Wis.

DRILLS FOR SALE

Star 71 drill mounted on 3-ton Dodge truck, gas engine, self starter, 150 amp welder, all tools 6" to 16"—bailers and perforators also 1½-ton Chevrolet truck. Misc. items. Price $9500. Wm. A. Douglas, 304 13th St., Paso Robles, Calif.

Complete drilling business consisting of three all-steel drilling machines—two trucks, mounted and one unmounted. Drilling tools from 5" to 15", fishing tools, test pumps and pump equipment. This must be seen to be appreciated. Will also sell all new resident buildings. Write Box 278, Winnebago, Ill.

All-steel No. 60 Howell well rig in first-class condition. Power derrick hoist, two catheads, rear axle steering. Rubber shock absorber in derrick, four-cylinder LeRoi motor, four solid-rubber tires and semi-fifth wheel for any flatbed truck hook up. Price $1000. Jos. A. Hartmann, New Prague, Minn. Phone 155.

DRILLS FOR SALE

71 Star all steel spudder which is equipped with International gasoline engine and drilling tools, from 10 inch down to 4 inch hole, including 1000 feet ¾-inch drilling line, and 600 feet sand line all in good condition. Approximately 350 feet of 6¼ I. D. casing 17 pound and 150 feet 8⅝ in. 24 pound casing. A bargain at $2500. The H. and E. Drilling Company, 3232 Piatt, Mattoon, Illinois.

Two 22-W Bucyrus-Erie drill machines approximately two years old, in very good condition. Not mounted. Equipped with spooling device, calf reel and Hercules power. All tools and lines, also steel catwalk, are included with machines and are priced to sell. Call or write Fred Hawthorne, 2314 Morningside Avenue, Parkersburg, West Virginia. Telephone 8-6626.

No. 35 Cyclone new in March. Complete jetting equipment with 400 ft. drill rod and tools. Mounted on '35 Ford with '41 motor. Will sell reasonably. Robert L. Ellrick, Box 543, Newell, Iowa.

Loomis K-2 all steel drill, mounted on '33 Chevrolet 1½-ton long wheel base truck. 400' of ½" drilling line and 300' of ¼" sand line. In good operating condition. Located Indiana. Price $1000. Box 383

No. 10 Ideco spudder mounted on '37 1½-ton Ford truck with Mercury motor. Machine equipped with 36' telescopic mast, pipe braces, catheads and power derrick hoist. Located in Indiana. In first-class condition. Box 369

All-steel Cyclone rig, 22 ft. derrick, powered by model A 4-cyl. engine. Trailer-mounted and in good running condition. Full line 5" tools, 400 ft. drilling line and 350 ft. sand line included. All tools and cable bought within last year and like new. Price $1200. Truck may be bought extra. Mrs. Mary Szela, Sobieski, Wis.

DRILLS FOR SALE

Two 1948 22-W Bucyrus-Erie well rigs, trailer mounted. Each equipped with spooling device, tool guide, catheads, and rubber-cushioned heel and spudding sheaves. Both complete with cable and tools. In good condition. Priced at $4500 each. Lloyd C. Perry, Glencoe, N. Mexico.

Bucyrus-Erie 33-W truck mounted, power derrick hoist, cable and tools. Running condition. Garber & Son, 5807 W. Hampton Road, Milwaukee 16, Wisconsin.

Bucyrus-Erie 21-W drill with tools. Truck-mounted on 1931 A truck. Includes 300 ft. ⅝" drill line; 300 ft. 7/16" sand line; one swivel socket; one set jars; one 12'x4" drill stem; two 5" bits; one 6" bit; one 5" sand bailer; one 6" sand bailer; one set tool wrenches; one set bar and chain tool tightener; one set chain pipe tongs; one set drive clamps. All in first-class condition. Drill and tools purchased new in 1948. Located in Wisconsin. Box 384

Bucyrus-Erie 21-W with or without tools. New in September 1948. Mounted on '37 Diamond T 1½-ton truck. Rig like new, truck very good. 500 ft. ⅝ new cable, 500 ft. almost new sand line. 4¼x12' drill bar, swivel socket, jars, six 6" bits, one 8" bit, drive blocks, wrenches with No. 2 chain tightener, 4½x18' dart valve bailer, 5"x6' flat bottom bailer. 4" tools, 3x12' drill bar, swivel socket, two 4" bits, one 6" spudding bit, jars, drive blocks, wrenches and No. 1 chain tool tightener, 3x10' dart valve bailer, 3x6' flat bottom bailer. All tools for 6" have 2x3-8 OWS joints, 4" have 1½x2¼-8 API joints. Priced reasonably. Box 374

No. 10 Ideco spudder, 3 years old, with power derrick hoist and electric starter, mounted on '40 Chevrolet 1½-ton truck. In good operating condition. Price $2000. Located Indiana. Box 387

(continued on page 30)

DRILLS FOR SALE

(continued from page 29)

Bucyrus-Erie 21-W, trailer mounted, less tools, two years old, with extra motor. Rig used very little.

Bucyrus-Erie 20-W, truck mounted, less tools, one year old and used very little.

No. 35 Cyclone, used only on one job, complete with drill rods.

C. L. Jennings, New London, Iowa.

Two No. 24-W Bucyrus-Erie machines in A-1 condition, mounted on trucks ready for work; $3500 each, f.o.b. Providence. Artesian Well & Supply Co., Box 1241, Providence, Rhode Island.

Bucyrus-Erie 21-W first class condition, complete string of 5⅝" tools, new cables, fishing tools, gas welder. Mounted on 1936 Chev. 1½-ton with new motor and radiator and five new tires. Only $2500. Dee Linn, St. Joe, Arkansas.

One 50 Keystone, two years old, mounted on cab over engine Ford truck complete with string new 6" tools. All excellent condition. Also one Bucyrus-Erie 21-W mounted on GMC truck, complete with 6" tools and cable. Ready for immediate sale. Contact Frank Carroll, Brewster, New York. Phone 825.

No. 32 Star equipped with model "A" Ford engine and mounted on 2½-ton Biederman truck. Complete with string of 5", 6" and 8" tools, $1000. Tyler "Red Chief" wire line drill equipped with model Y-112, Continental engine, 35' mast with 6" and 8" tools and 400' lines. Price without truck, $1000. Located Southeastern Ohio. Phone or write Hubert Farris, 3357 Madison Road, Cincinnati 9, Ohio.

No. 240 Star, 3½ years old, with power derrick hoist, mounted on '38 Chevrolet 1½-ton truck. Includes 250' of ⅝" drilling line and ¾" sand line. In good operating condition. Located Ohio. Price $2200. Also 200 AMP Hobart, two-wheel portable welder, operated less than 150 hours, excellent condition. Price $600. Box 389

DRILLS FOR SALE

No. 40 Cyclone less than a year old. Complete with power derrick hoist, worm feed, special tool guide, 30 ft. one piece mast. Mounted on half-track less than 1000 miles. Will sell with or without tools. John Stoepfel, R. R. 2, Columbus Grove, Ohio. Phone 59R3.

Bucyrus-Erie 24-L drill, equipped with 2 year old UD-6 IHC diesel engine, electric starter, 40' telescoping derrick, casing reel, catheads, spooling device and swabbing gear. Mounted on 4-wheel dual tired trailer with electric brakes. In good operating condition. Located Ohio. Price $6000. Box 390.

Keystone drill, in good condition, mounted on 2½ ton International truck, 1936 model. Machine can be seen in operation most every day. Located Indiana. Price $1500, complete with tools, cables and truck. Box 385

For Sale: Well drilling and pump business. 3 Bucyrus-Erie drills; lots of pipe and casing; pumps and supplies. Located in central Iowa. Owner wishes to retire. Box 392

New all steel custom-built drill powered with model "A" Ford engine, 40' telescoping mast with power hoist, mounted on '37 Dodge 1½-ton, 500' capacity, will sell less than cost. Also No. 1½ Loomis Clipper wire line drill, with 32' steel telescoping mast and power hoist, powered by 1 year old Willys jeep engine with electric starter and throw-out clutch. Mounted on '37 Dodge 1½-ton truck, complete with 5⅝" tools and line. Write J. W. Stephens, Christiansburg, Ohio.

One Armstrong 35-W well drilling machine, steel frame and derrick, LeRoi gasoline engine, trailer mounted with pneumatic tires in front, solid tires in rear, rubber shock absorbers in derrick head. Cable and 400' of ⅝" drill line new, 400' of ⅜" sand line new, and all tools necessary to drill 6" and 5" wells. Price $2400. $2000 less swivel socket stem, two 6" bits and two 5" bits. Andrew Egofske, R. 3, Box 89, Waukesha, Wisconsin.

DRILLS FOR SALE

Good going well drilling business. Model 70 Keystone machine with 28 hp LeRoi engine, 38 ft. derrick, mounted on 1937 GMC 2-ton truck. Two swivel sockets, four bits, 2x3-7 API joints, 2 stems. Ten room home on beautiful 1½ acres in suburb of Milwaukee. Call Milwaukee BLuemound 8-2716. Fred Kuck, Brookfield, Wis.

MISC. FOR SALE

Approximately 300 feet of 16" O. D. by ⅜" wall pipe, just like new. Torch cut ends. $5 per foot. Riegler Water Well Drilling, 2190 Henry Street, Muskegon, Michigan.

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in original crates

1—VP with clutch. List $460—will sell $360.

2—VF with clutch. List $389.60—will sell $320 ea.

1—VF with generator and starter, without clutch. List $405—will sell $335.

Mark W. Stephens, E. Lincolnway, Valparaiso, Ind.

HELP WANTED

Driller wanted. Must be steady and sober, beyond draft age of 26. Yearly salary guaranteed. Contact Matt Boddeker, Box 405, Oak Lawn, Ill.

Help Wanted: Drillers for Bucyrus-Erie machines. Big hole experience necessary. Great Lakes region. Box 391

POSITIONS WANTED

Driller, age 53. 27 years experience in operating domestic pump and drilling business in northern Indiana, drift. Wish to make part time or short hour week hook-up with small drilling, or domestic water supply business. Prefer to locate south, or where winter is mild. Box 386

Experienced driller for 10" to 36" diameter water well work on Bucyrus-Erie 28-L Spudder in Southwestern Ohio. Excellent hourly pay or will work out incentive arrangement if desired. Box 388

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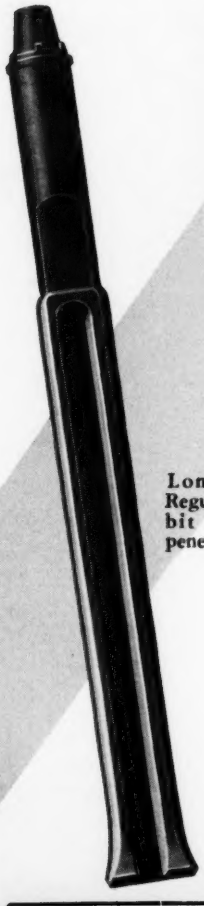

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